

THAT WHICH IS CLAIMED IS:

1. A method of making a metal complex, comprising the steps of:

(a) acylating a dipyrromethane or a 1-monoacyldipyrromethane to form a mixed reaction product comprising a 1,9-diacyldipyrromethane;

5 (b) combining said mixed reaction product with a compound of the formula R_2MX_2 in the presence of a base, where R is alkyl or aryl, M is Sn, Si, Ge, or Pb, and X is halo, OAc, acac or OTf, to form a metal complex of the formula DMR_2 in said mixed reaction product, wherein D is a 1,9-diacyldipyrromethane; and then

(c) separating said metal complex from said mixed reaction product.

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2. The method of claim 1, wherein said acylating step (a) is carried out by reacting said dipyrromethane or 1-monoacyldipyrromethane with a compound of the formula R^3COX , where R^3 is alkyl or aryl and X is halo, to form said mixed reaction product comprising a 1,9-diacyldipyrromethane acylated at the 1 and 9 positions with

15 R^3CO- .

3. The method of claim 1, wherein said acylating step (a) is carried out by reacting said dipyrromethane or 1-monoacyldipyrromethane with an acid chloride and a Grignard reagent to form said mixed reaction product comprising a 1,9-diacyldipyrromethane.

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4. The method of claim 1, wherein said acylating step (a) is carried out by reacting said dipyrromethane or 1-monoacyldipyrromethane with an active ester to form said mixed reaction product comprising a 1,9-diacyldipyrromethane.

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5. The method of claim 1, wherein said acylating step (a) is carried out by reacting said dipyrromethane or 1-monoacyldipyrromethane with a Vilsmeier reagent to form said mixed reaction product comprising a 1,9-diacyldipyrromethane.

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6. The method of claim 1, wherein said base is selected from the group consisting of triethylamine, tributylamine, *N,N*-diisopropylamine, DBU, DBN, and 2,6-di-*tert*-butylpyridine.

7. The method of claim 1, wherein M is Sn.

8. The method of claim 1, wherein said acylating step (a) is carried out with a dipyrromethane which is thereby acylated at the 1 and 9 position to produce said 1,9-
5 diacyldipyrromethane.

9. The method of claim 1, wherein said acylating step (a) is carried out with a 1-monoacyldipyrromethane which is acylated at the 9 position to produce said 1,9-
10 diacyldipyrromethane.

10. The method of claim 1, wherein said compound of the formula R_2MX_2 is immobilized on a solid support.

11. The method of claim 1, further comprising the step of:
15 (d) treating said metal complex with an acid to produce a 1,9-
diacyldipyrromethane.

12. The method of claim 11, wherein said acid is selected from the group consisting of trifluoroacetic acid, trichloroacetic acid, acetic acid, HCl, *p*-toluene
20 sulfonic acid.

13. The method of claim 1, further comprising the steps of:
(d) reducing said metal complex with a reducing agent to form a diol from said
1,9-diacyldipyrromethane; and then
25 (e) condensing said diol with a dipyrromethane to form a porphyrin ring
compound therefrom.

14. The method of claim 13, wherein said reducing agent is $NaBH_4$.

30 15. The method of claim 1, wherein said dipyrromethane is substituted at the 5
position with a substituent selected from the group consisting of H, alkyl, and aryl.

16. The method of claim 1, wherein said dipyrromethane is substituted at the 5 position with a substituent selected from the group consisting of dipyrromethane, porphyrin, dipyrin, and diacyldipyrromethane.

5 17. A method of making a metal complex, comprising:

 reacting a 1,9-diacyldipyrromethane with a compound of the formula R_2MX_2 in the presence of a base, where R is alkyl or aryl, M is Sn, Si, Ge or Pb, and X is halo, OAc, acac or OTf, to form a metal complex of the general formula DMR_2 , wherein D is said 1,9-diacyldipyrromethane.

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 18. The method of claim 17, wherein said base is selected from the group consisting of triethylamine, tributylamine, *N,N*-diisopropylamine, DBU, DBN, and 2,6,-di-*tert*-butylpyridine.

15 19. The method of claim 17, wherein M is Sn.

 20. A metal complex of the general formula DMR_2 , wherein D is a 1,9-diacyldipyrromethane, M is Sn, Si, Ge, or Pb, and R is alkyl or aryl.

20 21. The metal complex of claim 20, wherein M is Sn.

 22. The metal complex of claim 20, wherein said dipyrromethane is substituted at the 5 position with a substituent selected from the group consisting of H, alkyl, and aryl.

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 23. The metal complex of claim 20, wherein said dipyrromethane is substituted at the 5 position with a substituent selected from the group consisting of dipyrromethane, porphyrin, dipyrin, and diacyldipyrromethane.

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